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ABSTRACT

Compiled are 37 abstracts of recent master's, doctoral, and major project research in environmental education and communications. Most of the citations included describe work completed in the 1982-83 academic year. Abstracts are organized into seven topic areas: (1) site analysis--descriptions and development plans for areas to be used for environmental education; (2) parks and camps (users and interpreters)--studies dealing with park and camp programs, especially user characteristics and interpretive techniques; (3) media communications--examinations of the effectiveness of various forms of media; (4) pupil-centered studies--research dealing with student characteristics; (5) teacher-centered studies--research on teacher and interpreter training, attitudes, and behavior; (6) citizen-centered studies--research on attitudes, values, and involvement of citizens in environmental problems; and (7) studies dealing with environmental education policy, administration, and philosophy, as well as some experimental studies which cannot be included in the other categories. Title, author, and institutional source for the entire thesis/dissertation collection are provided for each abstract. An index to entries in previous volumes and an alphabetical list by state (including Canada) of institutions offering graduate programs in environmental education and communications are also provided. (JN)

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Recent Graduate Works and Programs in Environmental Education and Communications

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Prepared for the

National Association for Environmental Education

December 1983

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Copies of this volume, the 1978, 1979, 1980, 1981 and 1982 volumes are available through: NAEE, P.O. Box 400, Troy, Ohio 45373 for $5.00; or through ERIC/SMEAC, Ohio State University, 120 Chambers Road, 3rd Floor, Columbus, Ohio. The 1978 volume is no longer available through ERIC; the 1979 volume is catalogued as SE 029 408.

If you wish to contribute to future publications, please contact Dr. David Hanselman, NAEE Thesis Project Director, 311 Marshall Hall, SUNY-CESF, Syracuse, New York 13210.

Introduction

Recent Graduate Works and Programs in Environmental Education and Communications is Volume VI in a series that continues to attract and publish relevant theses and project abstracts. This reference work is a cooperative effort of the National Association for Environmental Education, the State University of New York College of Environmental Science and Forestry, and Education Resource Information Clearinghouse.

The publication's new title reflects an active desire to stimulate interest in nontraditional environmental education research that has escaped the attention that such a growing body of works deserves. At the same time, the publishers remain committed to reproducing abstracts of masters theses and doctoral dissertations that also enrich the environmental education field.

Abstracts included in this volume are organized into seven categories: (1) Site Analysis--descriptions and development plans for areas to be used for environmental education; (2) Parks and Camps: Users and Interpreters--studies dealing with park and camp programs, especially user characteristics and interpretive techniques; (3) Media Communications--examinations of the effectiveness of various forms of media; (4) Pupil-Centered Studies--research dealing with characteristics of pupils; (5) Teacher-Centered Studies--research focusing on training, attitudes, and behavior of teachers and interpreters; (6) Citizen-Centered Studies--research dealing with the attitudes, values, and involvement of citizens in environmental problems; (7) Resources, Administration and Others--studies dealing with environmental education policy, administration, and philosophy, as well as some experimental studies which cannot be included in the other categories.

The annual request for abstracts begins in the fall of the year preceding publication. Explanatory letters and printed abstract forms are mailed to an ever-increasing list of graduate departments of environmental education, park administration, natural history interpretation, environmental studies, communications, journalism, and other potentially related fields. This broad coverage is designed to encourage responses from a range of programs which generate research related to environmental education and communications.

This volume includes a new feature, the Index to Past Volumes. Readers may now quickly survey published abstracts by year and subject category for items of potential interest. The relevant abstracts may then be located and studied in the appropriate volumes. (Volume I was published in 1978.) This publication offers an expanded directory of graduate programs in environmental education and communications. It is hoped that these aids increase the value of Recent Graduate Works as a reference tool for educators, administrators and students.

The lifeblood of these volumes is comprised of the institutions they feature and the readers who utilize them. At its best, the annual publication can operate on the leading edge of the environmental education field, documenting research trends and educational opportunities. The publishers wish to thank the contributors to this year's issue. They and others are encouraged to provide abstracts, program information and suggestions so that the 1984 volume will reflect continued improvement of the series' quality and usefulness.

Dr. David L. Hanselman
Project Director

Lawrence D. Ennist, Jr.
Editor

1. Site Analysis

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE A Description and Natural Resource Inventory of the Labrador Hollow Unique Area.

AUTHOR Jane A. Offringa **DATE OF COMPLETION** August 1982

INSTITUTION State University of New York, College of Environmental Science and Forestry

DEPARTMENT / PROGRAM Graduate Program in Environmental Science; Environmental Monitoring, Assessment, and Impact

THESIS ADVISOR Dr. Maurice M. Alexander

WHERE FULL THESIS IS AVAILABLE Moon Memorial Library

(Citation number if applicable)

The Labrador Hollow Unique Area was purchased by the State of New York in 1978 using monies set aside for unique areas by the Environmental Quality Bond Act of 1972. In 1978 the area was assigned to the State Nature and Historic Preserve Trust. In response to a need for a base line inventory and description of the area, this research and thesis resulted.

The geology and hydrology described is the basis of the area's uniqueness. The plant and animal communities are somewhat unusual because of their diversity; 405 species of plants and 189 vertebrate animal species. Species of plants and animals living in the Hollow include some that normally live farther to the north or farther to the south. This through-valley includes 400 acres of wetlands of various types and a 100-acre pad on the valley floor and about 1000 acres of forested hillsides.

Recommendations for suitable use by the public were presented. These uses include activities that would not alter the Hollow's characteristics nor violate its sensitivities. Locations of nature walks and canoe access were established.

A physical and chemical analysis was made of Labrador Pond. It averages 2.5 feet deep with muck varying from 2 feet at the north end and 33 feet at the south end, this representing the southern slope of a glacial terminal moraine. Although the hillside soils are acid, the pond water is alkaline due to its added deep ground-water source.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE: Guide Handbook: Oliver H. Kelley Farm and Interpretive Center, Elk River, Minnesota

AUTHOR Judith A. Meyerdierks **DATE OF COMPLETION:** April 1982

INSTITUTION: Sangamon State University, Springfield, Illinois

DEPARTMENT / PROGRAM: Environmental Studies

PROJECT
THESIS ADVISOR: Edward L. Hawes

PROJECT
WHERE FULL THESIS IS AVAILABLE: Brookens Library, Sangamon State University,

(Citation # if applicable) Springfield, Illinois 62708 (after June 1, 1982)

This interpretive plan assumed the form of an interpreters' handbook for a living historical farm and historic site. The farm was once the home of the founder of the National Grange. It is now operated by the Minnesota Historical Society. Five major themes, including the interplay of cultural and natural history as one theme, are considered in the modular handbook. Modules include History Notes, Training Notes, and Interpreters' Notes. They discuss the substance and method of interpreting the farm. The handbook presents one approach to interpretive planing which addresses the cultural and natural environment, which has a flexible and convenient structure, and which serves as a comprehensive resource for the interpreter.

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Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE Proposed Management Options for the Amelioration of Recreational Impacts on Coyote Gulch, Glen Canyon National Recreation Area

AUTHOR Mary Barbara Carey **DATE OF COMPLETION** May, 1982

INSTITUTION Duke University, Durham, NC 27706

DEPARTMENT / PROGRAM School of Forestry and Environmental Studies

THESIS ADVISOR Joan P. Baker

WHERE FULL THESIS IS AVAILABLE FES Publications Office, address above

(Citation number if applicable) Master's Project

Coyote Gulch is a canyon within the proposed Escalante Wilderness of the Glen Canyon National Recreation Area in southeastern Utah. There is no comprehensive wilderness management plan for Coyote Gulch. Instead, management has consisted of ad hoc efforts to maintain the quality of the wilderness experience and the environment. This study proposes a series of management programs designed to lessen the impacts of recreational uses upon Coyote Gulch.

The management concerns studied are: permits, trails, campfires, campsites, human body wastes, water quality, group size, noise and odor, litter, and graffiti. The author proposes that the NPS require mandatory backcountry permits, prohibit campfires, limit group size, and improve users' knowledge of the backcountry through increased dissemination of information.

2. Parks and Camps: Users and Interpreters

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE Audience attention as an indication of the quality of an interpretive presentation on a nature trail

AUTHOR Kenneth LaVerne Hensley **DATE OF COMPLETION** 1982

INSTITUTION The Pennsylvania State University

DEPARTMENT / PROGRAM Recreation and Parks

THESIS ADVISOR Jerold E. Elliott

WHERE FULL THESIS IS AVAILABLE Interlibrary Loan, Pattee Library, The Pennsylvania State University, University Park, PA 16802

This study examined the possiblity of using observation of audience attention, as defined by head and/or body direction toward a speaker, as an unobtrusive evaluation tool for the field of interpretation. Upper elementary and junior high school students were unobtrusively observed by researchers at two-minute intervals while they attended interpretive tours on the Holly Forest nature trail at the Sandy Hook Unit of Gateway National Recreation Area. Following the presentation, students completed a questionnaire evaluating their enjoyment and understanding of the tour. Students were not told they had been observed. No significant, positive relationship was found between attention and information retention. Statistically significant correlations were found to exist between interpreter satisfaction and retention. When correlations between attention, retention, and satisfaction were calculated for selected variable groups, several statistically significant relationships were found. However, in each case, variance (r^2) explained by the relationship was low. This would suggest that in settings such as the one used in this study, attention, as defined, cannot serve as a reliable indicator of audience information retention and/or satisfaction with the tour or interpreter.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE Determination of differences regarding motives for camping, management preferences, and preferences for programming expressed by experienced and first-time campers at Gifford Pinchot and Prince Gallitzin State Parks in Pennsylvania

AUTHOR Robert David Griffith **DATE OF COMPLETION** 1982

INSTITUTION The Pennsylvania State University

DEPARTMENT / PROGRAM Recreation and Parks

THESIS ADVISOR Monty L. Christiansen

WHERE FULL THESIS IS AVAILABLE Interlibrary Loan, Pattee Library, The Pennsylvania State University, University Park, PA 16802

During August 1980, a study of campers in Pennsylvania State Park campgrounds at Gifford Pinchot and Prince Gallitzin State Parks was conducted to determine their preferences for recreation experiences, preferences toward different state park management actions, and problems encountered. The study also examined the relationship between the two parks and between first-time and repeat campers. The campgrounds were surveyed on two days each, a Saturday and a weekday. A total of 597 questionnaires were distributed to campers age 18 or older, and 466 (78%) were returned. The Statistical Analysis System (SAS) was used to analyze the data. The most important reasons for camping identified were to do something with the family, to get away from the usual demands of life, to enjoy scenery, to be close to nature, and to be with friends and people doing similar activities. Organized program activities, the Bureau of State Parks' Campground Host Program, camping fees at the current level, and the Campground Reservation System were supported. Overall, the study demonstrated that behavioral information from state park campers, such as desired recreational experiences and opinions on management issues, can be determined in a useful manner for managers.

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Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE The effects of canoe tripping on the self-concepts of campers in a long-term therapeutic wilderness camp

AUTHOR Keith E. Paulk **DATE OF COMPLETION** 1982

INSTITUTION The Pennsylvania State University

DEPARTMENT / PROGRAM Recreation and Parks

THESIS ADVISOR Herberta M. Lundegren

WHERE FULL THESIS IS AVAILABLE Interlibrary Loan, Pattee Library, The Pennsylvania State University, University Park, PA 16802

It was hypothesized that experimental subjects (n=20) who participated in a three-week canoe trip would display significantly higher levels of self-concept afterwards than control subjects (n=20) who remained at camp during the same time period. Further, it was hypothesized that the experimental group would show significant gains in self-concept over the experimental period. The subjects were 40 residents, ages 10-16, of E-Mun-Talee Boys Camp (Lowgap, NC), which serves youth with behavior problems. All subjects were pre- and posttested for self-concept using the Piers-Harris CSCS. Between-group comparisons were made using t-tests, and within-group comparisons were made using paired t-tests. It was found that the experimental group displayed a significantly higher mean level of self-concept than the control group following the experimental period, and that the experimental group displayed a significant gain in its mean self-concept level from pre- to posttest. It was concluded that canoe tripping can favorably affect the self-concepts of residents of a therapeutic camp.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE Nonformal Environmental Education in Natural Resources Management: A Case Study in the Use of Interpretation as a Management Tool for a State Nature Preserve System

AUTHOR Edward C. Olson **DATE OF COMPLETION** June 1983

INSTITUTION The Ohio State University

DEPARTMENT / PROGRAM Environmental Education/Natural Resources

THESIS ADVISOR Dr. Robert E. Roth

WHERE FULL THESIS IS AVAILABLE Ohio State University Library THESIS,1983/PH D

A visitor education strategy was developed, implemented and tested for its effectiveness in raising levels of knowledge and attitudes toward state nature preserve management. Visitor sociodemographic and site-specific data were also collected and analyzed.

A stratified random sample of visitors to four Ohio state nature preserves was taken and visitor sociodemographic, site-specific, knowledge and attitude data were obtained by a 35 item questionnaire. Results from 1,141 completed questionnaires showed preserve visitors to be mostly male, age 20-39, with an income of $10,000-30,000 with few holding memberships in either community or conservation groups. Most were frequent visitors to state nature preserves, were very satisfied with their most recent preserve visit, and came to the preserve with either family or friends for solitude and to sightsee.

A pretest of visitor knowledge and attitudes toward selected nature preserve management concepts showed that visitors had a poor comprehension of the concepts and held negative or neutral attitudes toward them. A visitor education program was developed utilizing interpretive strategies as methods of transmitting information about the preserve management concepts. Posttest scores showed gains on both level of knowledge and attitudes. The largest gains were found where brochures and personal services were employed as interpretive strategies.

Correlational analyses showed statistically significant relationships between visitors' knowledge of preserve management and their attitudes toward it. Analyses showed no relationship between sociodemographic variables and knowledge of or attitudes toward preserve management concepts.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE The Effectiveness of Communication Forms Used by the Soil Conservation Service and Soil and Water Conservation District: A Dual Perspective.

AUTHOR Sylvia J. Wong DATE OF COMPLETION August, 1983

INSTITUTION The Ohio State University

DEPARTMENT / PROGRAM School of Natural Resources, Division of Environmental Education

THESIS ADVISOR Dr. John F. Disinger

WHERE FULL THESIS IS AVAILABLE ERIC Clearinghouse for Science, Mathematics and Environmental Education. Rm 310 1200 Chambers Rd. Columbus, Ohio 43212

The purpose of the study was to determine the effectiveness of communication modes used by the SCS and SWCD of Clinton, Highland and Warren Counties in southwest Ohio. The evaluation was based on a comparison of perceptions given by SCS and SWCD personnel and farmers from each of the study counties.

The principal conclusions drawn from this study are:

1) SCS and SWCD personnel perceive communication modes involving personal contact to be more effective than communication modes which do not involve personal contact.

2) Farmers' perceptions of the effectiveness of personal and non-personal forms of communication were variable and as a result, farmers do not always perceive communication forms involving personal contact to be more effective than communication forms which do not involve personal contact.

Other significant points to this study are:

1) The identification of magazines, by the majority of farmers surveyed, as a source of conservation information. These results are different from past studies which indicated magazines were among the least recognized sources of conservation information and may be indicative of a need for educators and communicators of conservation information to place more emphasis on the magazine as an appropriate vehicle for the transmission of conservation information to members of rural communities.

2) Survey results from farmers indicated a widening interest in the use of television as a means to transmit conservation information. These results deviate from the results of past studies in which farmers did not consider television as a source of conservation information. This study recommended further investigation be made into the acceptability and feasibility of using television as a means to communicate conservation information to farming communities.

3) Need for Soil and Water Conservation Districts to better coordinate their special activities in terms of publicity and in working with other districts to bring as much conservation information to as many members of farming communities as possible. This study indicated farmers were unaware of the special activities held by their districts and that they were interested in the programs offered by other districts in addition to those programs offered in their own districts.

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Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE ENERGY AND THE ENVIRONMENT

AUTHOR Karen Kirkman/Niagara Mohawk Power Corp DATE OF COMPLETION 11/82

INSTITUTION State University of New York, College of Environmental Science & Forestry

DEPARTMENT / PROGRAM Graduate Program-Environmental Science, Env. Ed./Com.

THESIS ADVISOR Frank Maraviglia

WHERE FULL THESIS IS AVAILABLE Niagara Mohawk Public Affairs & Corporate Communications Dept., 300 Erie Blvd. West, Syracuse, NY 13202

This project was undertaken as part of a professional internship at Niagara Mohawk Power Corporation, a major New York State investor-owned electric and gas utility. The project focused on the preparation of an informational booklet for the general public; describing the activities and responsibilities of the Niagara Mohawk Environmental Affairs Dept. The 16-page booklet, illustrated with photographs; describes Niagara Mohawk's efforts to meet energy needs while preserving environmental quality. The booklet is divided into 5 main sections: Air, Water, Land, Recreation, and Environmental Management. Subtopics include pollution control, acid rain, hazardous wastes management and toxic substances control, forest and wildlife management, transmission rights-of-way, and environmental research studies.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE Methods of reinforcement and visitors' attention span at an interpretive exhibit

AUTHOR Frederic Hom DATE OF COMPLETION 1982

INSTITUTION The Pennsylvania State University

DEPARTMENT / PROGRAM Recreation and Parks

THESIS ADVISOR Frank B. Guadagnolo

WHERE FULL THESIS IS AVAILABLE Interlibrary Loan, Pattee Library, The Pennsylvania State University, University Park, PA 16802

This study examined the relationship between the method of reinforcement and visitors' attention span at an interpretive exhibit. A total of 191 subjects were randomly selected from a pool of fourth-, fifth-, and sixth-grade students attending programs at the Shaver's Creek Environmental Center during the Spring of 1982. Subjects were asked to try out a new exhibit and were casually observed and timed while they attended to the exhibit. The exhibit was a quizboard-type and was designed to allow five interchangeable methods of reinforcement. The methods of reinforcement were randomly assigned. Using analysis of variance, t-test, or chi-square, no statistically significant differences were found between the method of reinforcement and attention span. Additionally, no significant differences were found between age, sex, grade, satisfaction, and attention span nor was there any significant difference between satisfaction and the method of reinforcement. The results of the study seem to indicate that the current use of lights and buzzers in quizboard-type exhibits cannot be supported solely on the basis of trying to hold attention. Additionally, the level of satisfaction of the exhibit studied cannot be based upon the method of reinforcement or the amount of time the visitor attended to it.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE Preferences for promotional materials used by a recreation and park agency

AUTHOR Sheri Lee Sykes DATE OF COMPLETION 1983

INSTITUTION The Pennsylvania State University

DEPARTMENT / PROGRAM Recreation and Parks

THESIS ADVISOR Patricia Farrell

WHERE FULL THESIS IS AVAILABLE Interlibrary Loan, Pattee Library, The Pennsylvania State University, University Park, PA 16802

Three seasonal program brochures were examined according to their appearance, organization, readability, and ease of handling. The brochures represented possible designs of a program guide for the Shaver's Creek Environmental Center, located near State College, Pennsylvania. Randomly selected members of the Environmental Center, who were residents of State College, rated the brochure. Fifty personal interviews were conducted during June, July, and August of 1982, using a questionnaire developed by the investigator. Twenty-three males and 27 females were surveyed. Their ages ranged from 15 to over 61, with 46% belonging to the 31-40 age category. The data collected were analyzed using analysis of variance with repeated measures, Tukey's honestly significant difference test, and X^2. It was found that the appearance, organization, readability, and ease of handling of the three brochures were significantly different, $p<.05$. In addition, 86% of the subjects indicated that they were very likely to keep their preferred brochure for the entire time period it covered. Of the four brochure criteria examined, organization was found to be significantly more important than the others ($p<.05$). Readability, ease of handling, and appearance followed in descending order of importance.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE The relationship between attention span, information retention, and satisfaction using various methods of reinforcement at an interpretive exhibit

AUTHOR Jane Miller Horvat DATE OF COMPLETION 1983

INSTITUTION The Pennsylvania State University

DEPARTMENT / PROGRAM Recreation and Parks

THESIS ADVISOR Frank B. Guadagnolo

WHERE FULL THESIS IS AVAILABLE Interlibrary Loan, Pattee Library, The Pennsylvania State University, University Park, PA 16802

This study examined the relationship between attention span, information retention, and satisfaction using various methods of reinforcement at an interpretive exhibit. The exhibit was a quizboard dealing with the adaptive function of mammalian teeth and the types of food eaten by insectivores, herbivores, carnivores, and omnivores. The exhibit design allowed the following interchangeable variations of methods of reinforcement: printed answers only; illuminated (light-positive); audible (buzzer-positive); dual illuminated and audible (light-positive and buzzer-negative); and dual illuminated and audible (light-negative and buzzer-positive). The 171 subjects were randomly selected from groups of fourth-, fifth-, and sixth-graders who attended programs at the Shaver's Creek Elementary Center of The Pennsylvania State University. The exhibit variations were randomly assigned and the subjects casually observed and timed while they attended to the assigned exhibit variation. Following their time with the exhibit, the subjects completed a questionnaire evaluating their information retention and satisfaction with the exhibit. Using analysis of variance, no statistically significant relationships were found to exist between attention span and information retention or satisfaction and information retention. The results of this study would suggest that attention span is not a reliable indicator of the educational effectiveness of and satisfaction with quizboard exhibits.

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Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE The Use of National Park Planning Workbooks for Citizen Participation: Enhancing Effective Communication

AUTHOR Deborah Anne Simmons, Ph.D. DATE OF COMPLETION 1/83

INSTITUTION The University of Michigan

DEPARTMENT / PROGRAM School of Natural Resources, Behavior & Environment Program

THESIS ADVISOR Rachel Kaplan and William B. Stapp

WHERE FULL THESIS IS AVAILABLE University Microfilms

Effective citizen participation depends upon the participants' ability to understand the information being presented. This study examined three factors hypothesized to be central to information sharing: the understandability, appeal and format of the presentation. Understandability refers to the useability of the information and its appropriateness for the task at hand. Making the presentation appealing or interesting concerns incorporating elements of the presentation that encourage further participation. Finally, the format of the presentation provides structure for the information, facilitating both orientation and further participation.

The study examined citizen participation workbooks used by the National Park Service in the management planning process. Six workbooks were selected to test the importance of understandability, appeal and format.

Three aspects of participant interaction with the workbooks were tested. Information-utilization was measured in terms of information the participants felt was most helpful. The participants' satisfaction with numerous aspects of the workbooks were also examined. Finally, the ability of the participants to comprehend the information was assessed.

The results of the study support the hypothesis that information-sharing depends upon the presentation's understandability, appeal and format. Those participants receiving workbooks with higher a priori ratings in terms of the information-sharing principles showed a greater ability to recall the information presented and developed a better understanding of the implications of proposed actions than those receiving workbooks with lower a priori ratings. The way information was presented also affected the participants' satisfaction with the participation process.

Additionally, relationships emerged between the way material was presented and the participants' rating of its usefulness. It was found that orientation was facilitated by elements, such as maps and headings, that define spaces or visually distinguish pieces of information. For a more extensive review, however, placement of the information in a way that permitted direct comparisons of information and alternatives was particularly important.

Environmental Education / Communication
Project or Thesis Report Form

National Association for Environmental Education

TITLE: A Content Analysis of The Conservationist: A Post-Earth Day Perspective

AUTHOR: Blaise A. Corcoran DATE OF COMPLETION: 1984

INSTITUTION: SUNY College of Environmental Science and Forestry

DEPARTMENT / PROGRAM: Environmental Education

THESIS ADVISOR: Dr. David Hanselman

WHERE FULL THESIS IS AVAILABLE: SUNY-CESF

Two content analyses were performed on The Conservationist for the period 1970-1979 to determine the extent of the environmental orientation of its feature articles following the environmental information crescendo of 1969-1970. Subject matter was analyzed using the subject matter categories enhanced by DeWolf (1978) for her follow-up study on American Forests. In coding each feature article from a sample of 641 articles that appeared in the time period, articles emphasizing the appreciative view of nature increased, along with articles on management and miscellaneous topics. Those articles emphasizing specific environmental problems did not make up a significant percentage of the article total. This was found to be consistent with DeWolf's findings. However, ecology-oriented articles experienced a noticeable decline in emphasis.

The physical and cultural orientation of the articles was determined using category systems developed by Belak (1972) in his follow-up study of outdoor magazines. In coding 100 articles (randomly sampled from the 641 article subject matter sample), The Conservationist showed emphasis on general, interior, regional and rural concerns. Appreciative articles appeared more often than consumptive articles, although neutral articles appeared in the sample.

The findings point out the magazine's adherence to its statement of purpose and its position as house organ for a state agency. While concentrating on the appreciative, educational articles on nature, the magazine has neither forgotten the hunters and fishermen who were so important in the state's conservation movement nor actively embraced an environmental, problem-oriented format.

4. Pupil-Centered Studies

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE AN ASSESSMENT OF ECOLOGICAL KNOWLEDGE GAIN RESULTING FROM A RESIDENT ENVIRONMENTAL EDUCATION PROGRAM

AUTHOR Leslie Marie Cancilla DATE OF COMPLETION July 1984

INSTITUTION The Ohio State University

DEPARTMENT / PROGRAM School of Natural Resources - Division of Environmental Education

THESIS ADVISOR Dr. Mary Lynne Bowman

WHERE FULL THESIS IS AVAILABLE The Ohio State University Library System

SUNSHIP EARTH, a five-day, resident environmental education program, conducted at the McKeever Environmental Learning Center, was assessed to determine whether or not change in student ecological knowledge occurred as a result of participation in the program and if participating students showed higher levels of knowledge than non-participating students.

Eighteen classroom groups totalling 423 fifth and sixth grade student participants in SUNSHIP EARTH and a control group consisting of 97 fifth and sixth grade non-participants were tested to assess student knowledge of the seven ecological concepts upon which the SUNSHIP EARTH curriculum is built.

A multiple-choice test was used in a pretest-posttest research design to measure changes in knowledge. Independent and dependent t-tests were used to evaluate changes in cognitive knowledge using group mean scores.

Results indicate that significant learning beyond the .05 level did occur in all groups as a result of participation in the SUNSHIP EARTH program. Also, participants of the program knew more about ecological concepts than students who did not experience the program beyond the .05 significance level.

Recommendations for further study include a teacher effectiveness study and an assessment of the attitudinal realm of the SUNSHIP EARTH program. Rigorous efforts should also be placed on developing valid and reliable evaluative instruments to measure the effectiveness of other environmental education programs and determine their worth in promoting the philosophy of Environmental Education.

Environmental Education/Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE : The Implementation and Evaluation of Microcomputer Simulations in a College Level Environmental Education Course

AUTHOR : John F. Schar

DATE OF COMPLETION 8/?/83

INSTITUTION : Ohio State University

DEPARTMENT / PROGRAM : Division of Environmental Education

THESIS ADVISOR : Dr. Rosanne W. Fortner

This study investigated the use of computer based simulations in an introductory natural resources management course. The need to train students to solve environmental problems is complicated by the complex, interrelated processes that are involved in these problems. When direct experience is not possible as a teaching method, the use of simulations seem to be a practical substitute to teach these processes.

The objectives of the study were to select courseware applicable to environmental education curricula, implement this courseware into a college level natural resources course, and to evaluate this courseware by measuring the cognitive gains and attitude toward computers of the students.

Although several computer simulations were reviewed for the study, only three were selected to be used. Individual learning modules were developed for two simulations produced by CONDUIT entitled Ecological Modeling and Demographics and the LIMITS simulation from the Minnesota Educational Computing Consortium. The modules were designed to be stand alone units requiring little teacher supervision and were taken by one half of the students as outside class work.

Pretest/posttest comparisons indicated that the group using the computer simulations had better factual recall than the noncomputer group ($p=.039$). The students' attitude toward computers, especially enjoyment, appears to shift, although the shift was not statistically significant.

Although the computer simulations were successfully implemented, their effectiveness as tools to teach interrelationships was not determined. These simulations can be considered a promising application of the computer for environmental education, but should be more effective in courses where more teacher-to-student interaction and more student-to-computer interaction can be accommodated.

The review of courseware indicated a need for more high quality, educationally sound programs. A final implication of the study was that computer simulations as a teaching method are not applicable to all content areas, students or teachers, but they can help to individualize instruction.

5. Teacher-Centered Studies

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE The effect of three training methods on the teaching preparation of counselor-teachers in a resident environmental education program

AUTHOR Susan Lynette Johnson **DATE OF COMPLETION** 1982

INSTITUTION The Pennsylvania State University

DEPARTMENT / PROGRAM Recreation and Parks

THESIS ADVISOR Jerold E. Elliott

WHERE FULL THESIS IS AVAILABLE Interlibrary Loan, Pattee Library, The Pennsylvania State University, University Park, PA 16802

In this study, 20 male and female college students volunteered to participate as counselor-teachers during the two-week resident program. Eight counselor-teachers were utilized the first week and 12 the second week. Each of them participated in a 1-1/2-day training session prior to the four-day resident program. Three environmental lessons were taught to the counselor-teachers (forest study, stream study, and energy audit) by resident program staff using three training methods: experiential, instructional materials, and modeling. Two questionnaires were designed to determine which of the training methods best prepared the counselor-teachers for teaching the environmental lessons. Mean scores for questionnaire statements were compared both between and within groups using analysis of variance. The Tukey WSD test was used to determine which of the various mean scores significantly differed either between or within groups. From the findings it was concluded that counselor-teachers who experienced three training methods did not perceive the modeling training method to be more effective than the experiential or the instructional materials methods. However, the analysis indicated a trend toward modeling as being more effective.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE: A National Survey of Curriculum Needs as Perceived by Professional Environmental Educators

AUTHOR: Trudi L. Volk

DATE OF COMPLETION: March 28, 1983

INSTITUTION: Southern Illinois University

DEPARTMENT / PROGRAM: Curr., Instr., & Media (Science/Environmental Education)

THESIS ADVISOR: Harold R. Hungerford and Audrey N. Tomera

WHERE FULL THESIS IS AVAILABLE: Education Section - Morris Library - SIU-C

The purpose of this study was to assess perceived environmental education curriculum needs in the United States. The Environmental Education Curriculum Needs Assessment Questionnaire (EECNAQ) was developed, validated, and direct mailed to 169 randomly selected environmental educators who were members of two professional environmental education organizations. Ninety-nine individuals responded to the survey (return rate = 58.6%).

The EECNAQ elicited perceptions about the desired status of environmental education curricula, the current status of environmental education curricula, the need for curricula development, the anticipated use of curricula by teachers, and the need for inservice teacher education related to goal-oriented curricula. These five major questions were posed relative to fifteen goals which reflected the Tbilisi objectives and which addressed environmental knowledge, issue awareness, issue investigation/evaluation skills, and citizen action. Respondents were asked to consider the five major questions at each of four academic levels (elementary, middle school, secondary, college).

The following inferences were drawn from the findings:

1. Professional environmental educators believe there exists a considerable discrepancy between the desired status and the existing status of environmental education. This discrepancy becomes more pronounced as an individual moves upward through his/her educational experiences.
2. Individuals in the sample perceived that environmental education goals are not being met with existing curricula.
3. The need for environmental education curricula and for inservice teacher education are perceived as considerable at all academic levels and substantial for all of the environmental education goals. Goal-related teacher education appears to be the major need at all academic levels with the exception of the college level, where inservice needs are exceeded slightly by the need for goal-oriented curricula.
4. Professional environmental educators believe that goal-oriented curricula would be used by classroom teachers, although the extent of its use relative to discrete goals would be varied.
5. Formal and non-formal environmental educators are in general agreement regarding the above perceptions.

Recommendations included immediate and extensive inservice teacher education efforts and the development of curricula addressing the set of goals utilized in the study. Further recommendations for future research were also tendered.

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Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE Process-oriented training for camp counselors: Its effects on group cohesion and job performance

AUTHOR Harry R. Buchanan DATE OF COMPLETION 1982

INSTITUTION The Pennsylvania State University

DEPARTMENT / PROGRAM Recreation and Parks

THESIS ADVISOR Herberta M. Lundegren

WHERE FULL THESIS IS AVAILABLE Interlibrary Loan, Pattee Library, The Pennsylvania State University, University Park, PA 16802

This study evaluated the effects of process-oriented training (adventure-oriented segment) on group cohesion and job performance of camp counselors, compared to more traditional content-oriented training. Two study groups were utilized, each comprised of 21 counselors (10 male, 11 female) of college age or older, who were contracted to a therapeutic camp for emotionally handicapped children. The control group was evaluated during the summer of 1980, and the experimental group was evaluated during the summer of 1981. The Fundamental Interpersonal Relations Orientation-Behavior Scale, administered to both groups as a pretest and posttest, and the Group Environment Scale, administered as a posttest, both contain measures of group cohesion. An Evaluation of Performance Rating Form measured job performance, and subjects were compared using demographic data from camp applications. Data was analyzed by analysis of variance, t-test, and product-moment correlation techniques. Neither scale showed statistical evidence of increased group cohesiveness, although the experimental group showed a significant increase in expressiveness on the GES and significantly higher job performance scores on the EPRF, indicating that the process-oriented training program had a positive impact on job performance and increased the degree of communication.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE Safety in the Chemistry Laboratory

AUTHOR Thomas W. Woodruff DATE OF COMPLETION 5/2/83

INSTITUTION Sangamon State University

DEPARTMENT / PROGRAM Environmental Science

THESIS ADVISOR Charles Schweighauser

WHERE FULL THESIS IS AVAILABLE Sangamon State University, Springfield, IL. (62708)

This manual assesses information useful to Illinois secondary school chemistry teachers in evaluating safe laboratory operation. The chemistry teacher is presented fundamental guidelines in laboratory experimentation consistent with accepted methods of chemical use and disposal. Thirty-six references were surveyed for information useful to chemistry teachers. The goal of this manual is to allow a chemistry teacher to develop a safe laboratory program.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE Values and Environmental Education: A Workshop Model for Training Teachers and Leaders

AUTHOR Deborah S. Yandala **DATE OF COMPLETION** 9-82

INSTITUTION The University of Michigan

DEPARTMENT / PROGRAM School of Natural Resources, Behavior and Environmental Program

THESIS ADVISOR Dr. William B. Stapp

WHERE FULL THESIS IS AVAILABLE The University of Michigan Natural Science Library

The goals of environmental education emphasize awareness, knowledge, concern, and motivation which lead to working for solutions and prevention of environmental problems. In seeking to elicit concern for the environment, one must take into consideration deeply rooted values and how they effect decision-making and problem-solving. A basic understanding of the valuing process and specific valuing stragegies can be beneficial to teachers and leaders in designing environmental education experiences. Training in values education can also help teachers and leaders be clear on personal values and encourage personal development, particularly in relation to environmental concerns.

Values are enduring beliefs which are prized and considered to be of prime importance to an individual. When a value is activated, certain actions or behavior reflect the value. Each individual has her or his own value system, which is an enduring organization of beliefs. This system helps individuals to make decisions, solve conflicts, and make choices. While a value system is relatively stable over time, change occurs when there is a reordering of priorities. New information or experiences can produce conflict which leads to clarification or reprioritizing, either of which are valuable in an individual's development.

There are numerous ways to work with values in an educational setting. How a teacher or leader chooses to work with values is dependent upon goals, atmosphere, the nature of the group, and specific topics in a given situation. By combining the use of various strategies, the strength of each can be used to complement one another. Strategies which are summarized and evaluated are laissez faire, inculcation, values analysis, action learning, behavior modification, values clarification, and moral development. Special attention is given to moral development and values clarification because of their significance in environmental education.

The workshop model is designed to be a 1½-2½ day experience for teachers and leaders wanting to develop skills in values education, examine their own values, and make applications to environmental education. Suggestions are given for those conducting the workshop as well as specific explanations of each part of the model. The model includes valuing activities, mini presentations on valuing theories and strategies, and group discussions on the application of values education. Guidelines for handling values, follow-up possibilities and evaluation are also elements of the model.

It takes both skill and sensitivity to handle values in a way that is helpful to people. Understanding how one might best approach values in a variety of situations requires a knowledge of valuing strategies and theories on how to apply them. The workshop model is designed to give both content and process suggestions to enable people wanting to incorporate values education into environmental education experiences to do so more effectively.

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Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE The use of the arts in interpretive programming

AUTHOR Susan Dale Alexander DATE OF COMPLETION 1982

INSTITUTION The Pennsylvania State University

DEPARTMENT / PROGRAM Recreation and Parks

THESIS ADVISOR Patricia Farrell

WHERE FULL THESIS IS AVAILABLE Interlibrary Loan, Pattee Library, The Pennsylvania State University, University Park, PA 16802

The purpose of this study was to investigate the extent and type of arts being used in interpretive programs, and the skills and value placed on use of the arts in interpretation by staff members of interpretive facilities. Two questionnaires were designed to survey a variety of interpretive facilities to ascertain 1) demographic characteristics; 2) actual implementation of fifteen art categories; 3) information about the training, philosophy, skills, intentions, and interest in implementation of the same art categories by the staff members of these facilities. The study groups consisted of 84 interpretive centers and 140 staff members of those centers. The data were analyzed using frequencies, percentages, and Pearson Product Moment Correlation Coefficients. It was found that most interpretive centers did use some form of the arts, and that over half of the staff members planned to increase their use of the arts the following year. The forms of the arts most used were non-personal, i.e., records, tapes, films, slides. Interpreters also had the most training and felt most skilled in the use of those non-personal art forms. Interest in implementation of an art form in an interpretive program was found to be dependent on an interpreter's skill in that art.

6. Citizen-Centered Studies

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE "An Environmental Attitude Survey: Costa Rica"

AUTHOR Jo Ann Myer Valenti DATE OF COMPLETION 2/83

INSTITUTION University of Michigan

DEPARTMENT / PROGRAM School of Natural Resources - Environmental Communication

THESIS ADVISOR Drs. Peter M. Sandman and Stephen B. Kreston

WHERE FULL THESIS IS AVAILABLE B&B Progcam, SNR, UM, Ann Arbor, MI 48109

This study surveys the underlying attitudes of the people of Costa Rica and develops communication recommendations for the future diffusion of information concerning the environment and natural resource issues.

Using a structured, standardized questionnaire, interviewers randomly selected 255 respondents from designated high, medium and low income areas. In all, nine neighborhoods in San Jose Province were surveyed.

Major findings suggest that a general pro-environment attitude exists in this Central American country; environmental concern is high; and, environmental awareness is high. However, environmental awareness is not necessarily related to concern for the environment. Other findings indicate that mass media have no significant effect on building environmental awareness or concern, but in Costa Rica, opinion leaders, especially government leaders, are effective sources of information about the environment. The most interesting relationship uncovered was a strong, positive correlation between environmental concern and nationalism. Whereas in most countries, concern for the environment is often seen as an alternative to the national, political agenda, in Costa Rica, environmental concern is seen as equivalent to governmental concern.

The process and strategies developed in this study provide a basis for reasoning and planning that is transferable to any country attempting to improve the human and natural environment relationship.

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Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE See attached sheet

AUTHOR Jonathan Tulman DATE OF COMPLETION February, 1983

INSTITUTION College of Natural Resources, University of Wisconsin - Stevens Point

DEPARTMENT / PROGRAM Environmental Education/Interpretation

THESIS ADVISOR Michael P. Gross, Richard J. Wilke

WHERE FULL THESIS IS AVAILABLE UWSP Albertsen Learning Resources Center, Stevens Point, WI 54481

ENVIRONMENTATAL ACTION AND LOCUS OF CONTROL: VALIDATION OF THE PERCEIVED ENVIRONMENTAL CONTROL MEASURE

The major purpose of this research was to gather data on the construct validity on the Perceived Environmental Control Measure (PECM) a questionnaire designed to measure locus of control specific to environmental activism, and to investigate the potential influence of social desirability on subjects responding to the PECM. Test instruments were administered to the following populations: A) students enrolled in an environmental interpretation class (N=45); students enrolled in a psychology class (N=37); members of the Aldo Leopold Audubon Society (N=54).

In order to assess construct validity, Pearson Product-Moment Correlations were made between scores on a measure of citizen/environmental action and scores on the Internal (I), Powerful Others (P), and Chance (C) subscales of the PECM for each population. To determine the influence of social desirability, Pearson Product-Moment Correlations were made between scores on the Marlowe-Crowne Social Desirability Scale (MCSDS) and scores on the I, P, and C subscales for each population.

The data indicated that a significant ($p \leq .05$) relationship existed between citizen/enironmental action scores and the I, P, and C subscales for only the Audubon group. The highest correlation was r=.313. No significant relationship existed between citizen/environmental action scores and the I, P, and C subscale scores for either the environmental interpretation or psychology students.

The data also indicated a significant ($p \leq .05$) relationship existed between scores on the MCSDS and the I subscale for only the psychology students. No significant relationships existed between the MCSDS and any of the subscales for either the Audubon members or the environmental interpretation students, or between the MCSDS and the P and C subscales for the psychology students.

Implications of these results and recommendations for future research are discussed.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE Environmental Perceptions and Behaviors of Graduate Students and Professionals Working With Cooperative Wildlife Research Units

AUTHOR Michael A. Squillo DATE OF COMPLETION 5/83

INSTITUTION Southern Illinois University-Carbondale

DEPARTMENT / PROGRAM Department of Curriculum, Instruction and Media

THESIS ADVISOR Harold R. Hungerford

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The purpose of this study was to assess the environmental perceptions and behaviors related to a particular group's membership. This research assessed Cooperative Wildlife Research Unit (CWRU) members' ratings of their own perceptions concerning variables generally agreed to be related to environmental perspectives and/or behaviors. An assessment was made concerning the environmental issues identified by the CWRU members as being the most important issues facing mankind. Also assessed were CWRU members' perceptions of their own levels of variables related to environmental issues of greatest personal interest and a control issue. Environmental actions taken with respect to the issues of interest and the control issue were also assessed.

Findings showed a high degree of within group homogeneity of responses concerning the issues of greatest importance to mankind, with overpopulation, land-use management, and energy consumption receiving the greatest percentage of responses as one of the top three most important issues. A comparison of CWRU members' perceptions of the issues of greatest personal interest with a control issue showed marked differences between issues, with the issues of greatest interest receiving much higher ratings of perceived levels of variables assessed than did the control issue. The number of actions reported as taken were also greater with respect to the issues of greatest interest than with respect to the control issue. These findings, combined with the findings of other similar studies have yielded several important implications for the field of Environmental Education.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE Local Attitudes Toward Nonstructural Floodplain Management in North Carolina

AUTHOR John H. Lohnes DATE OF COMPLETION May, 1982

INSTITUTION Duke University, Durham, NC 27706

DEPARTMENT / PROGRAM School of Forestry and Environmental Studies

THESIS ADVISOR Jack P. Royer

WHERE FULL THESIS IS AVAILABLE FES Publications Office, address above

Property damages caused by flooding continue to increase throughout North Carolina as development expands into flood-prone areas. The state currently has no comprehensive floodplain management program to counter this trend. State enabling legislation, coupled with the requirements of the National Flood Insurance Program, encourages local communities to implement land-use controls that keep homes and businesses away from flood hazard areas. However, few state resources have been allocated to provide assistance to local governments.

A mail survey of 278 local government leaders in 28 flood-prone North Carolina communities was conducted to assess options for strengthening the state's floodplain management efforts. In general, leaders demonstrated a good understanding of their local flood problem and of the actions their communities had taken to reduce property damages. They are supportive of nearly all management strategies that might be used to influence development in flood-prone areas. However, they are reluctant to pursue an extensive local program due to perceived apathy or opposition from landowners, lack of adequate map data, and lack of funds. A strong state regulatory role is not supported, but funding for local planning and program development, and assistance with the preparation and improvement of existing maps are state actions that would be most effective in encouraging local floodplain management. Small communities and communities in the mountains tend to be less supportive of nonstructural flood hazard control strategies, indicating that state assistance programs must be adaptable to local and regional differences and needs.

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Environmental Education / Communication
Project or Thesis Report Form

National Association for Environmental Education

TITLE THE SAND LAKES QUIET AREA CONTROVERSY: CITIZENS INVOLVED IN ENVIRONMENTAL DISPUTE MANAGEMENT.

AUTHOR BONNIE ANDERSON DATE OF COMPLETION 5/83

INSTITUTION UNIVERSITY OF MICHIGAN - SCHOOL OF NATURAL RESOURCES

DEPARTMENT / PROGRAM BEHAVIOR AND ENVIRONMENT

THESIS ADVISOR DEAN JAMES CROWFOOT

WHERE FULL THESIS IS AVAILABLE SCHOOL OF NATURAL RESOURCES: B&E DEPARTMENT

This paper describes and analyzes an environmental dispute focused upon a land use decision. The case study exemplifies a situation increasingly experienced by public interest groups, environmental groups, state agencies and industry.
Citizens organizations are becoming increasingly involved in environmental conflict . Often groups employ tools of negotiation and mediation for conflict management and resolution without awareness of the process or expertise in it's implementation. As experimentation with these tools continues to expand, citizen groups need information that will help them make decisions with regard to the use of these tools.
A thorough analysis of the process used in the case study is conducted, a model for analytical and interactional tasks by stages of problem solving for citizen and environmental groups in environmental disputes is suggested, a discussion of formal negotiations as an alternative strategy that has positive potentials and problems is conducted, and recommendations for future involvement in similar situations is made for citizen and environmental groups.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE An Assessment of Environmental Education in West Virginia

AUTHOR Devra Deems DATE OF COMPLETION 1982

INSTITUTION West Virginia University

DEPARTMENT / PROGRAM Divisior of Forestry

THESIS ADVISOR Dr. Gene Bammel

WHERE FULL THESIS IS AVAILABLE West Virginia University

A study was made to gain background information about environmental education for Preston County, West Virginia, and eventually for the whole state. Seven different surveys were used. Those surveyed were: the superintendents of schools in all fifty-five West Virginia counties, the teachers and principals in Preston County, the Preston County Board of Education, Preston County Department of Natural Resources, two members of the legislature from Preston County, the West Virginia State Superintendent of Schools, the State Board of Education, and West Virginia colleges and universities. The data gathered show that teachers are the key to a good environmental education program and that there is an obvious need for more teacher preparation in the field of environmental education. A persistent problem is the lack of a clear definition of environmental education. Lack of agreement in this matter impedes both meaningful research and the development of a strong program.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE: An Economic Analysis of Hunter Education in North Carolina

AUTHOR: Thomas Dennis Peterson DATE OF COMPLETION: May, 1982

INSTITUTION: Duke University, Durham, NC 27705

DEPARTMENT / PROGRAM: School of Forestry and Environmental Studies

THESIS ADVISOR: William F. Hyde

WHERE FULL THESIS IS AVAILABLE: FES Publications Office, address above

(Citation # if applicable) Master's Project

Hunter education programs provide benefits of four types to hunters and the general public: 1) increased hunter safety; 2) increased hunter access to private lands; 3) increased regulatory efficiency of wildlife agencies; and 4) increased public approval of hunters. This analysis quantifies the marginal cost of providing two of these four benefits, those of hunter safety and hunter access, by analyzing the effects of hunter education efforts on accident and access rates in North Carolina and other states. It also attempts to quantify the demand for safety and access benefits in North Carolina in order to make inferences about the efficient level of spending on hunter education by the North Carolina Wildlife Resources Commission.

Results showed that hunter education efforts which significantly depress hunting accident rates are dollar expenditures per student, and, to a lesser extent, levels of student enrollment. Hunter density is positively correlated with accident rates. Hunting access rates to private lands in 12 eastern states are positively correlated with the increasing hour length of hunter education programs and negatively correlated with increases in state population density. In North Carolina, modest expenditure increases on hunter safety can noticeably reduce accident rates, but the lack of information identifying the hunter's willingness to pay to avoid accident risks prevents determination of whether current funding levels are too low or too high. A modest expansion of expenditure on hunter ethics could be expected to produce quite large benefits to hunters and the general public, although the lack of similar economic information for competing agency programs prevents inferences about the efficiency of current funding levels.

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Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE Forest Fire Frequency in a Central Eastern Washington Pinus Ponderosa Stand

AUTHOR Michael Joseph Brown DATE OF COMPLETION May 1982

INSTITUTION Central Washington University

DEPARTMENT / PROGRAM Biology

THESIS ADVISOR Curt A. Wiberg

WHERE FULL THESIS IS AVAILABLE Central Washington University Library

Forest fire frequency in the upper Swauk Corridor was determined using wedge-cut samples collected from 10 fire-scarred trees. The annual rings were counted and fire free intervals were determined. Averages for each sample were then determined showing how often each sample recorded a fire. These averages ranged from 10-41.5 years. All of the samples were correlated using Arno and Sneck's method for determining fire history to obtain accurate dates and frequencies of fire activity for the entire study area. Fire frequency was measured for two time periods. In the historical fire period 1699-1904 the mean fire interval was determined to be 7.88 years. In the fire protection period 1904-1942 the mean fire interval was 5.42 years.

The results from this study will be used in making future management decisions in the Swauk Pass area.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE : Measuring the Influence of Vegetation on Solar Retrofitting an Urban Neighborhood

AUTHOR : Kim Mills DATE OF COMPLETION 5/83

INSTITUTION : SUNY College of Environmental Science and Forestry

DEPARTMENT / PROGRAM : School of Landscape Architecture

THESIS ADVISOR : Dr. John Felleman

WHERE FULL THESIS IS AVAILABLE : School of Landscape Architecture, SUNY C.E.S.F., Syracuse, NY 13210

This study tests a process for measuring the influence of vegetation on solar retrofitting an urban neighborhood for domestic hot water. Three components of vegetation influence are considered: solar penetration of defoliate vegetation; public vs. private ownership of vegetation; and block orientation. A hybrid physical/numeric model is used to represent a complex set of neighborhood forms, simulate solar geometry during the design period, and calculate potential solar radiation available to rooftop collector surfaces. The solar fraction potentially available to the study neighborhood is represented as a function of the four vegetation conditions for both North-South and East-West block orientations. A sensitivity analysis of vegetation penetration estimates is conducted for each vegetation condition.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE A Program Development and Evaluation Model Derived From Nature Centers With School Programs

AUTHOR Janet Lynn Wolanin

DATE OF COMPLETION April, 1983

INSTITUTION The University of Michigan (UM)

DEPARTMENT / PROGRAM The School of Natural Resources (SNR)

THESIS ADVISOR Associate Professor Paul Nowak

WHERE FULL THESIS IS AVAILABLE SNR/UM

We live on a planet whose rapidly escalating world population continues to contribute to decades of environmental degredation by competing for declining supplies of finite resources (National Association for Environmental Education, membership brochure). In the U.S., 74.8% of the population is concentrated on 16% of the land surface causing energy, water, transportation, housing, air, water, food, and solid waste problems. Today's citizenry needs to be educated to understand and solve the environmental problems facing them.

Many institutions, including nature centers, have responded to this need by providing environmental education programs. These programs peaked in popularity during the 1970's and are presently suffering a decline due to the poor state of the economy. To date, environmental educators have been more involved in program development than in program evaluation.

Decreasing fiscal support and the demand for program quality mandate the use of evaluation. Besides sound decision-making and program improvement, evaluation should contribute to: the promotion of environmental education, the measurement of program effectiveness, the establishment of educational accountability, and the basis for claiming educational benefits. None of these advantages will occur as the result of haphazard effort. They require the systematic incorporation of evaluation into the program development process from the onset.

This thesis examines the role of evaluation at nature centers with school programs. Six Michigan and Ohio centers are chosen as case studies. A program development model incorporating evaluation is derived from these studies and the author's year-long internship at one of the centers. The model is primarily intended for nature center educators, but is also relevant to educators in other non-formal (non-school) settings.

Data obtained from personal interviews with the directors or program coordinators and a written survey indicate that inadequate evaluation may be a problem at nature centers across the country and that evaluation is more typical at newer centers, perhaps due to the recency of the administrators' education or training.

The solution to the problem of inadequate evaluation requires the demystification of evaluation so that its full benefits can be achieved by the practioner. A study of the "secrets" of those educators who do evaluate, coupled with the "excuses" of those who don't, could contribute toward the solution of the problem. So could workshops specially designed to help non-formal educators learn how to evaluate their programs. The survival of our planet in any recognizable form may well depend upon the success of such efforts.

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Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE Valuing the Environment: New Trends in Legislation and Economic Theory

AUTHOR Susan Katherine Parry DATE OF COMPLETION 3/83

INSTITUTION University of Utah

DEPARTMENT / PROGRAM Education

THESIS ADVISOR Florence R. Krall

WHERE FULL THESIS IS AVAILABLE University of Utah Library

Environmental legislation passed subsequent to 1964, and economic theory that diverges in its view of the environment from the standard economic position are examined for the changes in values they embody. New attitudes toward the environment that have surfaced within the establishment to date are primarily utilitarian and have played a modest role in solving concrete environmental problems. However, it is the position of this thesis that the values that accompany them are a significant shift from traditional western values and represent an important trend toward long-term planning, a greater awareness of the interrelatedness of all parts of the natural environment, and a willingness to reassess our view of the place of humanity in the natural order.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE Virginia: Residential Solar Thermal Energy Policies and Recommendations

AUTHOR Randall E. Mayes DATE OF COMPLETION August, 1982

INSTITUTION Duke University, Durham, NC 27706

DEPARTMENT / PROGRAM School of Forestry and Environmental Studies

THESIS ADVISOR Jack P. Royer

WHERE FULL THESIS IS AVAILABLE FES Publications Office, address above

(Citation number if applicable) Master's Project

Virginia is the fifteenth leading state in the use of total household energy per capita. Of the energy used, 72 percent is provided by petroleum products. Upon accepting increased state level responsibility for the national energy problem, Virginia must improve conservation and comprehensive residential energy policies. Conservation and solar thermal energy provide the greatest potentials for financial savings from decreased use of fuel oil and natural gas, as well as environmental and public health benefits.

Actions taken at the federal and state level to promote residential conservation and the use of solar thermal energy are examined. California's comprehensive residential solar thermal energy policies are used as a model. The advantages and problems of private utility involvement in leasing, selling, owning, and financing solar thermal equipment are discussed. Government, private sector, and private utility leadership in advancing conservation and solar thermal energy also are discussed.

The absence of specific and comprehensive warranties and of programs to finance solar thermal equipment for lower income families are determined to be the weakest areas in Virginia's solar thermal energy policies. A comprehensive solar thermal energy program is recommended for Virginia since the majority of its policies are in the early stages of development.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE A Study of the Vegetative Ecology of Burley Mountain in the Southern Cascades of Washington

AUTHOR William C. Cunha DATE OF COMPLETION Dec. 1981

INSTITUTION Central Washington University

DEPARTMENT / PROGRAM Biology

THESIS ADVISOR Curt A. Kiberg

WHERE FULL THESIS IS AVAILABLE Central Washington University Library

A qualitative and quantitative description of the vegetation and soils of the northeast slope of Burley Mountain is presented. Employing an indepth vegetation survey and computer analysis, five distinct community types and one association are distinguished in two major zones of forest vegetation. The differentiating characteristics are described and a key for their identification is presented. The soils, topography and other features of the local environment are discussed.

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE A VISUAL ASSESSMENT OF CHILDREN'S AND ENVIRONMENTAL EDUCATORS' URBAN RESIDENTIAL PREFERENCE PATTERNS

AUTHOR Augusto Quinones Medina DATE OF COMPLETION April 1983

INSTITUTION The University of Michigan

DEPARTMENT / PROGRAM Behavior and Environment Program

THESIS ADVISOR Dr. William B. Stapp

WHERE FULL THESIS IS AVAILABLE University Microfilms and Univ. of Mich. Library

This study's major purpose was to gain a better understanding of children's perceptions of the urban environment and to determine how these perceptions compare with those of environmental educators. Participants, including 207 middle-school students and 92 environmental educators, rated 56 photographs of the urban residential environment both in terms of their familiarity and preference for such scenes.

Based on students' preference ratings, a nonmetric, factor analytic method yielded 8 patterns that characterize the important categories of the urban environment. Three of these related to housing (Single-family Row Housing, Multiple-family Housing, and Tree-lined Streets). Five dealt with other aspects of the urban environment (Urban Parks, Retail City, Industrial/Factory Sites, Urban Mobility, and Run-down Urban). These patterns provide direct and concrete evidence that children share a common experience of place. They also indicate that preference ratings of photographs can effectively be used to identify children's environmental perceptions. These patterns were then used as the basis for further analyses of students' and environmental educators' familiarity and preference ratings.

Although students were less familiar with all of the patterns than were the environmental educators, both groups tended to know the same urban places. Regarding preference, the two groups agreed only on what they did not like about the urban environment. Both disliked run-down deteriorated places. What the two groups did like bore little resemblance to one another. Students preferred the more urban patterns while environmental educators favored the more "natural" patterns.

Students and environmental educators both had a positive and linear familiarity/preference relationship. The more familiar the pattern, the more it was preferred. This relationship, however, seems to be mediated by opportunities for involvement.

Based on the study's findings I recommend that environmental curricula and programs should employ the user's environmental perceptions as the starting point for exploring the environment. Environmental educators should be helping children understand how the immediate environment functions in their lives. Research on children's environmental perceptions should continue and the findings incorporated into the environmental planning process. When doing such research, a visual data-gathering technique should be seriously considered.

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Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE An Investigation of Noise as an Environmental Hazard

AUTHOR Lynn Phillips Grace **DATE OF COMPLETION** 1/83

INSTITUTION Cornell University

DEPARTMENT / PROGRAM Science and Environmental Education

THESIS ADVISOR Verne N. Rockcastle

WHERE FULL THESIS IS AVAILABLE Mann Library, Cornell University

From the time of the Industrial Revolution, noise has been a serious health hazard to people working under intensely noisy conditions. Damage to human hearing mechanisms has been a well-known by-product in such settings, but until the Twentieth Century, hearing injury was a non-compensable occcupational disability. In only the last few decades has noise beeen taken seriously by medical and governmental entities.

Recent research has shown that in addition to industrial, community noise has become a threat to health and well-being of sufficient severity to warrant comprehensive regulatory and protective controls. New research has shown that noise in the classroom causes numerous learning and communication difficulties. Other recent studies have implicated excessive noise in the environment as a causative factor in cardiovascular and other physiological disorders; findings suggest that noise may also play a signigicant role as a psychological stressor, most notably in urban and suburban areas.

Due to the rapid increase in air and automobile traffic over the past two decades, many nations have taken decisive measures to control this noise, but cannot keep pace with its growth. Given the rapid rise of ambient noise, it is possible that privacy and solitude are being threatened to greater degrees than ever before.

Noise is most often treated as a nuisance in the courts, and is not presently viewed as an invasion of privacy. Therefore, the author explored some general attitudes about noise to learn whether or not people view it as an invasion of privacy. To this end, it was necessary to provide background material on the concept of privacy and on some of its pertinent legal and developmental aspects. Background information on noise control was also included to illustrate the growing concern over noise as an environmental issue.

Thirty-nine Ithaca residents were interviewed in age groups ranging from eight-year-olds to adults, including junior high school, high school, and college students. Interviewees were first asked to rank noise among several environmental issues and were then asked questions that probed their concepts and opinions about privacy, noise, sound, and noise-induced hearing injury. As part of the interview, participants were asked to rate a selection of noises commonly heard at home or in their dormitory rooms. The ratings gave an indication of how each group responded to noise under different conditions. High school students tended to have the lowest noise tolerance scores for all groups interviewed. Surprisingly, all groups found children's loud voices to be the most disturbing.

While most of the interviewees felt noise was an invasion of their privacy, they did not respond to noise in the same way as to a physical invasion of privacy. Many said they simply let the noise intrusion pass without taking any action.

The participants generally felt that noise was a disruptive and negative influence in their lives, but that it was an inconvenience that had to be lived with in modern society. Several of the interviewees offered some thought-provoking suggestions on how possibly to solve the problem of excessive noise in the environment.

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GRADUATE PROGRAMS
in
Environmental Education and Communications

This is the fifth volume of Recent Graduate Works to solicit and include descriptions of graduate programs in environmental education and communications. Each year our listing has grown reflecting, we feel, the importance of this reference to everyone working in the field.

Program information is requested from all institutions contacted for thesis abstracts. The information provided by the institutions is reproduced here exactly as they reported it.

The programs are listed alphabetically by state and then by institution. The information is organized in the following manner:

Name of the Institution — Name of the person to contact for more information
Division offering the program
Title of the program
(Degrees offered)

A brief description of the program.

We wish to thank all those who contributed information on their graduate programs.

ARIZONA

University of Arizona
School of Renewable Natural Resources
Renewable Natural Resources
(B.S., M.S., Ph.D.)

William W. Shaw
SRNR, Bio. Sci. East 325
University of Arizona
Tucson, AZ 85721

Coursework and graduate studies are available involving interpretation, education and communication as it pertains to the management of natural resources.

CALIFORNIA

California State University, Hayward
Department of Teacher Education
Curriculum Option with specialization in Environmental Education
(M.S.)

Esther P. Railton
Professor of Teacher Ed.
Dept. of Teacher Ed.
Cal. State U., Hayward
Hayward, Cal. 94542

The Environmental Education program is designed for teachers and other group leaders. It includes extension, field and resident courses offered on campus or in school districts, in addition to the Master of Science degree in Curriculum. The program utilizes an Environmental Education Laboratory of Teaching Resources, a Teacher's Resource Center, an Herbarium, an Anthropology Museum, a Map Room and the University Library's extensive Environmental Education collection.

Humboldt State University
Department of Education
Master of Arts in Education:
Special Studies Env. Education

Dr. Alan Leftridge
Environmental Ed. Coord.
Department of Education
Humboldt State University
Arcata, CA 95521

The focus is to help students become proficient with the methods of promoting environmental awareness. The degree is directed at students interested in developing ways of sharing their concern for their environments with certain audiences utilizing various educational and interpretive techniques. Degree may be obtained without possession of a teaching credential.

San Francisco State University
School of Education
Environmental, Camping & Outdoor Education
(M.A.)

Dr. William Hammerman
ECO Education Program
San Francisco State University
1600 Holloway Avenue
San Francisco, CA 94132
415/469-2282

The study of the utilization of the outdoors and community resources as learning laboratories. Emphasis is placed on curriculum development, teaching strategies and evaluation.
Knowledge and skills in Environmental, Camping and Outdoor Education may be used by teachers, recreation leaders and interpreters in designing innovative instructional programs, developing effective teaching techniques and improving human understanding.

Stanford University
Department of Communications
(M.A., Ph.D.)

William Paisley, Assoc. Prof.
Department of Communications
Stanford University
Stanford, CA 94305

Students in the M.A. programs focusing on Journalism, Film, Broadcasting, or Communication Media and Social Change as well as students in the Ph.D. program in Communication Research can elect to conduct thesis research on problems of environmental communication such as the flow of environmental information to the public and to policymakers. Alternatively, students may participate in the design of information systems or campaigns to improve the flow of environmental information.

COLORADO

Colorado State University
College of Forestry and Natural Resources--Dept. of Education
Conservation Education
(M.Ed., M.S., Ph.D.)

Dr. Charles L. Mahoney
Prof. of Resource Conservation
Dept. of Recreation Resources
Colorado State University
Fort Collins, CO 80523

Graduate Programs lead to the Master of Education, Master of Science and Doctor of Philosophy degrees. The Conservation Education program prepares students to become teachers at the junior high and secondary levels. Emphasis at the graduate level is on furthering knowledge of natural resources conservation and management, developing more effective teaching techniques and innovative instructional programs.

DELAWARE

University of Delaware
College of Education
Educational Development
Environmental Education; Science Ed.
(M.Ed., Ed.D.)

Dr. Les Picker
College of Education
University of Delaware
Newark, DE 19711

This is a flexible program, designed to meet the employment needs of those entering the field of environmental education and/or science education. Teacher certification is required for entrance.

FLORIDA

Florida State University
Department of Curriculum & Instruction
Science Education (M.S.Ed.)
Social Studies Education (M.S.Ed.)

Rodney F. Allen, Professor
Social Studies Education

Ronald M. Good, Professor
Science Education

209 Education
Florida State University
Tallahassee, FL 32306
904/644-6553

No specific program in environmental education is offered; however, master's candidates in science and socal studies education may develop a program of studies with that focus. Students are encouraged to do so.

GEORGIA

University of Georgia
College of Education
Adult Education (M.A.)
Science Education (M.A.)
Social Science Education (Ed.S.)
Recreation & Leisure Studies (Ed.D.)

Prof. R.N. Saveland
203 Dudley Hall
University of Georgia
Athens, Georgia 30602

Franklin College of Arts & Sciences
Geography Department (Ph.D.)

School of Environmental Design
Landscape Architecture (BLA, MLA)

School of Forestry

Institute of Ecology

No description of programs available.

HAWAII

University of Hawaii at Manoa
Dept. of Educational Foundations
Emphasis in Environmental Education
(Masters, Ed.D.)

Chairman, Graduate Field
Dept. of Educ. Foundations
University of Hawaii
West Annex 2, Room 222
1776 University Ave.
Honolulu, HI 96822

The Department has several areas of emphasis, one of which is environmental education. The program works in conjunction with the Environmental Studies Program in the University.

IDAHO

University of Idaho
College of Forestry, Wildlife,
& Range Sciences
Interpretation/Communication
(B.S., M.S., Ph.D.)

Dr. James R. Fazio

Dr. Sam H. Ham

Dept. of Wildland Recreation Management
College of Forestry, Wildlife, & Range Sciences
University of Idaho
Moscow, Idaho 83843

Interpretation/communication is one of three curriculum options in the Department of Wildland Recreation Management. In addition to an introductory course in interpretive methods, majors take an applied laboratory course, at least 12 supportive electives, and practice interpretation with local school groups and through seasonal employment with land management agencies.
Work in environmental interpretation, environmental education or resource communications may be pursued through interdisciplinary studies leading to the M.S. in Wildland Recreation Management or to the Ph.D. Other areas of concentration include recreation planning, wilderness and dispersed recreation management, tourism, economics, administration and others.

ILLINOIS

Governors State University
College of Arts & Sciences
Science Division
Science Teaching
Secondary (M.A.)
Community College (M.A.)
Elementary (M.A.)

Dr. Mohammed A. Kishta
Governors State University
Science Division
Park Forest South, IL 60466

Science teaching program is interdisciplinary in nature and competency-based program. The competencies focus on: a) science content, investigative abilities, information retrieval, and the history and philosophy of science; b) learning theories, curricular development, teaching skills and evaluation; and c) cultural diversity, humanistic values and perspective.

Northeastern Illinois University
College of Arts & Sciences
Dept. of Geography & Environmental Studies
Geography & Environmental Studies
(M.A.)

Karl A. Kriesel, Grad. Coordinator
Dept. of Geog. & Env. Studies
Northeastern Il. University
5500 N. St. Louis
Chicago, IL 60625

Program is designed to provide advanced analysis of environmental and spatial systems. Included are ecological studies of human-environmental interrelations, studies of rapidly changing landscapes, locational studies concerning the geometrics of movement, size, shape and distance, and studies of environmental resources in terms of their interpretation, development and use. Urban land use planning sequence is also available.

Northern Illinois University
College of Liberal Arts & Sciences
see description
(M.S.)

Dr. Burley V. Bechdolt, Jr.
Office of Environmental Studies
Northern Illinois University
Dekalb, IL 60115

The university offers M.S. degree programs in the following departments whose programs make possible significant graduate work on environmental topics: Biological Sciences; Geography (emphasis in Natural Environmental Systems, Urban Economics, and Meteorology); Geology; Economics; Chemistry (Ph.D.) also); Physics; and Political Science (Ph.D.also).

Sangamon State University
Public Policy and Administration
Environmental Studies Program
(M.A.)

Dr. Malcolm P. Levin, Coord.
Environmental Studies Program
Sangamon State University
Springfield, IL 62708

The emphasis of the M.A. degree in Environmental Studies is on providing professional education in environmental analysis and planning. Students are trained to order and to compare information, concepts and ideas in comprehensive and meaningful systems. Students select a concentration from one of the following: Environmental Administration, Environmental Planning, and Individualized Environmental Studies. Students may also pursue an Energy Studies sequence.

Southern Illinois University
at Carbondale
Dept. of Curr., Instr. & Media
Science and/or Environmental Education
(M.S. Ed., Ph.D.)

Dr. Harold Hungerford

Dr. Audrey Tomera

Dept. of C.I.M.
323 Pulliam Hall
Southern Illinois University
at Carbondale
Carbondale, IL 62901

Degrees are offered in curriculum and instruction with an emphasis in either science or environmental education or a combination. The Ph.D. involves a minimum of 64 semester hours. A research emphasis exists for all graduate programs. Many opportunities also exist for internships, practicums and cognate courses outside the College of Education.

Southern Illinois University
at Edwardsville
School of Science and Technology
M.S. in Environmental Studies

George Arnold, Coordinator
Box 99
Southern Illinois University
at Edwardsville
Edwardsville, IL 62026

The environmental studies program is interdisciplinary and leads to a Master of Science degree in Environmental Studies. The faculties of all departments are available for reference and instruction. Students select their own topics for research. Besides developing marketable skills in analysis and communication, the program attempts to cultivate broad perspectives on major environmental problems.

INDIANA

Ball State University
Department of Natural Resources
Natural Resources
(M.S., M.A.)

Dr. Donald E. Van Meter,
Chairman
Dept. of Natural Resources
Ball State University
Muncie, IN 47306

The Dept. of Natural Resources offers a graduate major in natural resources leading to a Masters of Arts or a Masters of Science degree. A cognate (minor) in natural resources is also available for graduate students pursuing a doctoral degree in several other disciplines. Graduate programs are individualized for each person, with consideration given to the student's undergraduate academic background, professional experience and future employment interests.

Indiana University
School of Public & Environmental Affairs
Environmental Programs
(MSES)

J.C. Randolph, Director
SPEA Environmental Programs
400 E. 7th
Poplars 438
Bloomington, IN 47401

Most of the environmental programs of Indiana University emphasize the application of environmental science to the policy-making process. The approach is solution-oriented. Most programs provide a basic background, with varying emphasis, on technical skills, applied science, and knowledge of the political process. Students become specialists in particular aspects of environmental issues, yet have a broad perspective in terms of technical abilities and socioeconomic concerns.

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Purdue University
Dept. Forestry & Natural Resources
Outdoor Recreation
(M.S., Ph.D.)

Douglas M. Knudson
Dept. of Forestry
W. Lafayette, IN 47907

Interpretation as part of recreation resource management is studied in terms of economic and sociological impacts.

IOWA

Iowa State University
Professional Studies in Education
(M.S.)

Thomas Tanner
141 Bessey Hall
Iowa State University
Ames, IA 50011
515/294-7252

(1) M.S. in education, specialty in curriculum. Environmental education faculty member will be major professor for those emphasizing EE and environmental studies.
(2) M.S. or M.A. in general graduate studies, for those wishing mainly to improve subject matter competence for teaching; EE and environmental studies may be major program components.

KENTUCKY

Eastern Kentucky University
Dept. of Recreation & Park Administration
Recreation & Park Administration
(B.S., M.S.)

Dr. James McChesney
College of Health, Physical Education & Recreation
Dept. of Recreation & Park Administration
Begley 411
Eastern Kentucky University
Richmond, KY 40475

Degree in Recreation & Park Administration with opportunity to focus on outdoor/nature interpretation and recreation programs.
No thesis requirement.

Murray State University
Dept. of Instruction & Learning
Education (emphasis Environmental Education)
(M.A.)

Terry L. Wilson, Director
Center for Environmental Education
Murray State University
Murray, KY 42071

Murray State University offers graduate degrees with major emphasis in Environmental Education. The programs are administered by the center for Environmental Education and are designed to provide students with both classroom and practical experience. The program emphasizes holistic and humanistic approaches to teaching and learning, which focus on human/earth relationships. TVA's nearby Land Between the Lakes, a 170,000 acre national demonstration in environmental education and recreation, serves as an extended campus for formal and non-formal environmental education programs.

LOUISIANA

McNeese State University
College of Science
Environmental Science
(M.S.)

Dr. Victor Monsour, Chairman
Dept. of Environmental Science
and Microbiology
McNeese State University
Lake Charles, LA 70609

This is a general program in environmental science. Thesis is optional. Total minimum semester hours for the degree with a thesis is 24; whereas without a thesis the minimum number of hours required is 36. Specialization comes via the thesis.

MARYLAND

The Johns Hopkins University
Dept. of Geography and
Environmental Engineering
(M.A., M.S.F., Ph.D.)

Dr. M. Gordon Wolman, Chairman
Dept. of Geography and
Environmental Engineering
The Johns Hopkins University
Baltimore, MD 21218

The program in geography and environmental engineering has three major facets: surficial earth processes, environmental engineering including systems analysis, and resources and human geography. The emphasis is upon research and teaching at the graduate level in problems crossing disciplinary lines. These include such areas as location of public facilities, regulatory mechanisms in resource management and pollution control, natural processes and their relation to human activities, and the impact of human activities on spatial location and cities. Environmental education and communication are not formal aspects of the curriculum, but closely related to the work and participation of students and faculty in education and environmental decision making.

University of Maryland, College Park
College of Agriculture
Environmental Education
(M.S.)

Dr. Jack Wheatley
Agricultural and Extension Educ.
Room 0200-Symons Hall
University of Maryland
College Park, MD 20742

This program provides expertise in content and methodology appropriate for outdoor education for school systems. Professional park naturalists also are attracted to the program due to this orientation. The program is cross-disciplinary, with students choosing courses from a number of areas, including biology, wildlife management, resource economics, education and geography.

MICHIGAN

Michigan State University
Department of Fisheries & Wildlife
Natural Resources/Environmental Ed.
(B.S.)
Environmental Conservation Education
(M.S., Ph.D.)

Dr. R. Ben Peyton, Asst. Prof.

Dr. David I. Johnson, Asst. Prof.
Coordinator, NR/EE Program
Michigan State University
East Lansing, MI 48823

(Description follows on next page)

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An undergraduate program is offered as an interdepartmental effort by the Departments of Fisheries and Wildlife, Forestry, Parks and Recreation, and Resource Development. The NR/EE curriculum leads to certification in environmental education and an approved minor at the secondary level.
Graduate programs are available at both M.S. and Ph.D. levels. Emphasis depends on student needs and career goals may range from natural history interpretation to adult environmental education. Student programs may draw from a wide range of facilities and course offerings at Michigan State University.

University of Michigan
School of Natural Resources
Behavior & Environment Program
(B.S., M.S., Ph.D.)

Dr. Paul Nowak, Chairperson
2006 Dana
School of Natural Resources
University of Michigan
Ann Arbor, MI 48109

The School of Natural Resources offers both an undergraduate and graduate program in Behavior and Environment. Students can specialize in Environmental Advocacy, Environmental Communications, Environmental Instruction or Outdoor Recreation. All four concentrations share common concerns. In each case, the student is asked to take course work in three areas: Theory and Concepts; Skill Acquisition; and Effecting Change. Students desiring work experience are also field placed.

MISSOURI

University of Missouri, Columbia
Graduate School
Environmental Sciences
(M.S., Ph.D.)

Howard C. Hopps, M.D., Ph.D.
Committee Chairperson
Department of Pathology
School of Medicine
University of Missouri
Columbia, MO 65212

Emphasis is on a multidisciplinary approach to environmental problems --one that cuts across conventional disciplinary barriers. Programs are tailor-made to fit the individual student's needs, and are under the continual supervision of the Environmental Sciences Graduate Area Program Committee. Particular areas of strength include ecology, agricultural sciences, the physical sciences, including the Trace Substances Analytical Center, and sociological approaches to man-environment interaction.

MONTANA

University of Montana
College of Arts and Sciences
Environmental Studies Program
(M.S.)

Ronald E. Erickson
Environmental Studies
University of Montana
Missoula, MT 59812

The program accepts students from any discipline (including a few from education in the past eleven years). Our concern is for analyzing and "solving" environmental problems, and advocacy skills are required. Most students do thesis work on either scientific questions or issues of public safety.

NEW YORK

Lesley College/National Audubon Society
Division of Outreach & Alternative Education
Lesley/Audubon Environmental Education Program
M.S. Environmental Education

Diana Cohen
National Audubon Society
950 3rd Ave.
New York, NY 10022
212/546-9126

Mary Huegel
Lesley College Grad. Schod
29 Everett St.
Cambridge, Mass 02238
617/868-9600

Teaches deep ecology skills experientially in a two year close-knit traveling expedition community; a practical firsthand, nationwide examination of people, places and issues that leads to interpretive, outdoor, counseling, cross-cultural and academic competencies; an M.S. degree; postgraduate grants; internships; and environmental careers with National Audubon Society Expedition Institute afffiliates.

New York University
Sch. of Education, Health, Nursing & Arts Professions
Dept. of Cultural Foundations
Environmental Conservation Education
(M.A.)

Professor Tom Colwell
737 East Building
New York University
Washington Square
New York, NY 10003

Interdisciplinary Study of Major Environmental Issues. A wide range of elective courses from the many Schools and Divisions of the University in science and technology, media, social science and education are grouped around core courses and seminars in the philosophical and social issues of environmental problems.

State University of New York at Brockport
Dept. of Biological Sciences
Biological Sciences
(M.S.)

Dr. Joseph C. Makarewicz
Dept. of Biological Sciences
113 Lennon Hall
SUNY Brockport
Brockport, NY 14420

The Dept. of Biological Sciences offers two plans for the Masters of Science Degree in Biological Sciences: Plan I (a thesis program) or Plan II (independent research experience in lieu of thesis). The expertise and experience of 26 faculty members service about 30 graduate students in several areas of research. Approximately 13 faculty are active in environmentally oriented research and teaching. The Department is well-equipped with both conventional instruments and a number of unique facilities (e.g. artificial streams). Field equipment for aquatic and terrestrial ecology are available including four boats. The close proximity of the Finger Lakes Region, Lake Ontario, the Adirondack Park of New York, and the 500 acres at Fancher Campus of SUNY Brockport provide ample sites for ecological research.

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State University of New York
at Cortland
Division of HPER
Nature Recreation
Outdoor Education
Camping
(M.S., M.S.Ed.)

Dr. Linda R. Meyer
Coordinator, Graduate Program
Dept. of Recreation Education
A-310 PER Center
State University College, Cortland
Cortland, NY 13045

A program designed to give graduate level exposure to camping and outdoor education fields. Designed for teachers, camp administrators, nature recreation personnel, and outdoor educators in agency settings. Core of research methods, seminar in literature of recreation and research, administrative problems of camping, outdoor recreation, outdoor education, electives in arts and sciences and supporting areas.

State University of New York
at Plattsburgh
Institute for Man and Environment
Environmental Science
(B.A.)

Dr. James C. Dawson,
Director and Professor
Institute for Man and Env't
State University of New York
Plattsburgh, NY 12901

An undergraduate multidisciplinary program and opportunities to develop an environmental science degree with optional tracks in wildlife, ecology, alternate energy, planning, resource economics, and rural sociology. Students complete a senior-year research thesis at the Miner Lester satellite campus. Double major with Faculty of Professional Studies (includes education) is possible. No graduate program.

State University of New York
at Syracuse
College of Environmental Science & Forestry
Environmental Science
Environmental Education/Communication
(M.S., Ph.D.)

Prof. David Hanselman
Env. Education/Communications
311 Marshall Hall
SUNY-ESF
Syracuse, NY 13210
315/470-6551

This college is upper division and graduate. M.S. and Ph.D. degrees in Environmental Education and Communications are pursued through interdisciplinary studies in the Graduate Program in Environmental Science. Each student, working with his/her professor, charts an individual program based on three criteria: depth in an appropriate subject area; breadth of educational experience; and synthesis of the components. The College is adjacent to Syracuse University and through a unique contractual arrangement, GPES-EE/C students have full access to resources of both ESF and SU. Of particular strengths are the wide array of course offerings in Environmental Science (including Social Science) and Public Communications.

NORTH CAROLINA

Duke University
School of Forestry & Env. Studies
Master of Forestry
Master of Env. Management
(M.A., M.S., Ph.D.)

Dr. E. Garrett Martin, Director
of Student Administrative Services
School of Forestry & Env. Studies
Duke University
Durham, NC 27706

(Description follows on next page)

Duke's Forestry and Environmental Management graduate degree programs focus on these areas: Water and Air Resources, Resource Ecology, Forest Productivity, Forest Management Science, and Resource Economics and Policy. The emphasis is on quantitative analysis of problems and the formulation of imaginative solutions. Additional resources are afforded by the 8,300-acre Duke Forest, the university's Integrated Toxicology Program, and the school's Center for Resource and Environmental Policy Research. Individualized and interdisciplinary programs of study are encouraged.

North Carolina State University
Recreation Resources Administration
Recreation Resources
(M.S., M.R.R.)

Dr. Charles D. Siderelis
4008 Biltmore Hall
Sch. of Forest Resources
North Carolina State Univ.
Raleigh, NC 27606

The Master of Recreation Resources Administration is a professional degree designed for graduates interested in performing in the role of recreation executive. The Master of Science is provided for graduates desiring a more adequate comprehension of research methodologies for the analysis of recreation systems and for seeking policy and management alternatives. Several specializations are offered.

OHIO

Antioch University
Glen Helen Outdoor Education Center
Teacher/Naturalist Internships
no degree offered

Jean Horn, Director
Outdoor Education Center
1075 St. Rt. 343
Yellow Springs, OH 45387

Graduate students earn ten graduate credits going through five months of on-the-job training as naturalists, working with small groups of 5th-8th grade students who come by classes to our resident center. The facility is located in a 1,000-acre nature preserve owned by Antioch University.

The Ohio State University
Environmental Education
Communications
Environmental Education
Environmental Interpretation
(B.S., M.S.)

Dr. Robert Roth, Chairman
Environmental Education
383 Kottman Hall
2021 Coffey Road
Columbus, OH 43210

Master's candidates may propose their own 45 hour thesis or 55 hour non-thesis program building on a 12 credit hour core of Natural Resources Courses. The candidates progression of courses must be discussed with the graduate advisor prior to acceptance. Criteria for program acceptance includes coherence, and interpretation, education, or communications applicability. Courses may also be taken in other departments.

58 University of Cincinnati
Curriculum & Instruction
Environmental Education
(M.Ed., Ed.D.)

Dr. Thaddeus W. Fowler
Teachers College, #2
University of Cincinnati
Cincinnati, OH 45221

Individualized program in environmental education with major emphasis on environmentalizing the classroom and using community resources. There is strong cooperation with the U.S. EPA and Cincinnati. A practicum is required.

OREGON

Southern Oregon State College
Graduate School--General Studies
M.S. General Studies: Outdoor Ed.
(M.S.)

Dr. Ronald D. Faut
Biology Department S.O.S.C.
Ashland, Oregon 97520

The outdoor education program strives to develop leaders in conservation and outdoor education. The program gives the student a broad background in the sciences and the social sciences, and an understanding of the interrelationships of the ecological and economic aspects of conservation. Techniques of outdoor education are emphasized.

PENNSYLVANIA

Pennsylvania State University
Recreation and Parks Department
Recreation and Parks (RC PK)
(M.S., M.Ed., Ph.D.)

Herberta M. Lundegren
267 Recreation Building
Penn State University
University Park, PA 16802

Prepares students for administrative, supervisory, research, and teaching positions in public and private recreation and park systems, in colleges and universities, in voluntary agencies and institutions, and in commercial ventures. The program is oriented to meet the specific needs and research interests of each candidate.

Slippery Rock State College
School of Professional Studies
Environmental Education
(B.S. in EE, M.Ed.)

Dr. Craig c. Chase
Environmental Education
Slippery Rock State College
Slippery Rock, PA 16057

The undergraduate degree is designed to provide the student with interdisciplinary, holistic values as presented by the academia of many departments of the college.
The graduate degree is designed to prepare program administrators with an expertise in EE programs, siteplanning, and fund-raising as well as field knowledge of environmental components encountered.

University of Pittsburgh
Teacher Development
Science Education
(M.Ed., Ed.D.)

Dr. Albert P. Nous
Assoc. Prof. of Science Ed.
4C12 Forbes Quadrangle
University of Pittsburgh
Pittsburgh, PA 15260

Master and Doctoral level coursework is directed at the design of instructional resources, assessing the extent of cognitive growth of science concepts in young children and adolescents, uses of

(Description follows on next page)

microcomputers in environmental simulations, and assessing needs of school and community interest groups. The improvement of science education in schools is the primary goal.

SOUTH CAROLINA

Clemson University
Recreation and Park Administration
Environmental Interpretation
(M.R.P.A.)

H. Jesse Grove
277 Lehotsky Hall
Clemson University
Clemson, SC 29632

Students are prepared to function as historic/natural site interpreters themselves, or to effectively utilize the talents of staff interpreters in the role of a recreation and park administrator.

TENNESSEE

East Tennessee State University
School of Public & Allied Health
Environmental Health
(M.S.E.H.)

Monroe T. Morgan, Dr.P.H.
Professor and Chairman
Dept. of Environmental Health
P.O. Box 22960A
East Tennessee State University
Johnson City, TN 37601

Graduate education in environmental health is offered to prepare administrative and technical generalists for a variety of high level positions. Emphasis may include a variety of areas, such as epidemiology, water resources management, food sanitation, air pollution control, solid waste management, occupational safety and health, environmental analysis, and more.

TEXAS

Stephen F. Austin State University
School of Forestry
School of Education
Outdoor/Environmental Education
(B.S., M.S., D.F.)

Dr. Michael Legg
Box 6109 SFA Station
Nacogdoches, TX 75962

A strongly resource-oriented program that is cooperative between the Schools of Education and Forestry. Oriented toward preparing teachers for teaching in outdoor laboratories or nature centers.

Texas A&M University
Department of Recreation & Parks
Recreation & Resources
Development (Interpretation)
(MAg., M.S., Ph.D.)

Dr. James H. Gramann
Dept. of Recreation & Parks
Texas A&M University
College Station, TX 77843-2261

The Interpretive Option identifies and provides research-based solutions to communication problems encountered by administrators, managers, practitioners, and educators. The focus is upon the utilization of interpretation as a resource management tool, and upon the communication of technical knowledge in resource management to lay audiences.

UTAH

University of Utah
Dept. of Communication
Communication
(M.A., M.A., Ph.D.)

Robert K. Avery, Director of Graduate Studies
Dept. of Communication
University of Utah
Salt Lake City, Utah 84112

The department of communication at the University of Utah provides a broad-based theoretically oriented graduate program in communication studies. A primary area within the program is policy research and studies within a communication theory framework are strongly encouraged.

VERMONT

University of Vermont
School of Natural Resources
Natural Resources Planning (M.S.)

College of Education & Social Serv.
Teacher Education (M.Ed.)

Thomas R. Hudspeth
Environmental Program
University of Vermont
153 S. Prospect
Burlington, VT 05405

Emphasis in Environmental Interpretation as part of a 30-hour program in Natural Resource planning (M.S. degree) in the School of Natural Resources.
Emphasis in Environmental Education as part of a 30-hour program in Teacher Education (M.Ed. degree) in the College of Education and Social Services.

VIRGINIA

University of Virginia
Art and Sciences
Dept. of Environmental Sciences
(B.A., M.S., M.A., Ph.D.)

George M. Hornberger, Chairman
Dept. of Environmental Sciences
University of Virginia
Charlottesville, VA 22903

In 1969 the University of Virginia established an interdisciplinary program in environmental sciences to further the understanding of natural and human environments, to foster scientific analysis of environmental issues and problems, and to develop a rigorous academic program for students interested in a comprehensive approach to questions of environmental quality. The department attempts to educate two types of persons: a) those who wish to acquire a borad, thorough understanding of basic environmental phenomena and processes, and b) scientists who can make effective contributions to the fundamental knowledge of environmental systems.

Virginia Polytechnic Inst. & State University
University Center Env. Studies
Environmental Studies
(M.S., ph.D.)

Dr. John Cairns, Jr.
Univ. Center Environmental Studies
VPI&SU
Blacksburg, VA 24601

The University Center for Environmental Studies (UCES) was established in 1970 by the Board of Visitors as a component of the Virginia Tech Research Division. The Center is authorized to coordinate and focus University and sponsor resources on environmental problems and concerns within Virginia and to encourage the development of environmental information appropriate to worldwide application.

WASHINGTON

University of Washington
College of Education
C & I: Environmental Education
(M.Ed.)

Dr. Roger G. Olstad
115 Miller DQ-12
University of Washington
Seattle, WA 98195

A program intended for certificated teachers who wish to specialize in environmental education during Master's degree study. It combines work in environmental studies with education, and includes independent study options for students to explore areas of particular interest.

University of Washington
Institute for Environmental Studies (FM-12)
"Interns in Environmental Decisionmaking"
None

Ms. Vim Crane Wright
Asst. Director
Instit. for Env. Studies
University of Washington
Seattle, WA 98195

The "Interns in Environmental Decisionmaking" graduate program was established to train graduate students from a variety of departments in the social, natural and physical sciences to apply technical information in making policy decisions about complex environmental issues. The program involves two core courses ("Science and Environmental Policy: Theory" and "Case Studies"), a 4-18 month internship, and a summary paper.

Washington State University
Colleges of Education, Science, Agriculture & Engineering
Environmental Science/Regional Planning
(B.S., M.S., M.RP.)

Dr. Eldon Franz
E.E. Coordinator
Program in Environmental Sci. & Regional Planning
Washington State University
Pullman, WA 99164-4430

The program coordinates education in two closely related fields: environmental science and regional planning. The course of study for each student is flexibly designed in a unique multi-optional interdisciplinary context. Majors specializing in Environmental Education are granted Senior High School teaching certificates with endorsements for the major and minors in physical and biological science.

WEST VIRGINIA

West Virginia University
Division of Forestry
Environmental Concerns & Interpretation
(M.S.)

Dr. Gene Bammel
325 Percival Hall
West Virginia University
Morgantown, WV 26506

W.V.U. offers a graduate program in Environmental Education and Interpretation preparing the graduate for a career in Environmental Education, Administration or Policy Analysis. Course work is complemented either by a thesis or by a research problem. At least nine hours must be taken in graduate programs outside the Division of Forestry. Some research assistantships are available.

WISCONSIN

University of Wisconsin, Madison
Center for Environmental Comm. & Education Studies
Environmental Communications
(M.A., M.S., Ph.D.)

Dr. Clay Schoenfeld, Chairman
Center for Environmental Comm. & Education Studies
433 North Murray
University of Wisconsin
Madison, WI 53706

The Center for Environmental Communications and Education Studies is an informal consortium of faculty and students from a number of UW-Madison departments, devoted to appropriate cooperative teaching, research, and extension programs. The Center aids the professional training of specialists in environmental communications, sponsors studies of environmental communications media and methods, and provides various symposia and services.

Department of Agricultural Journalism
Natural Resources Communication
(M.S.)

John H. Fett, Chairman
440 Henry Mall
University of Wisconsin
Madison, WI 53706

To provide individually designed programs to equip natural resources professionals with better communications skills, journalists with more complete environmental knowledge, and both with an understanding of evaluation research.

Institute for Environmental Studies
Land Rsources Program
(M.S., Ph.D.)

Dr. Arthur B. Sacks, Administrator of Academic Programs
IES Instructional Program
70 Science Hall
550 N. Park Street
University of Wisconsin
Madison, WI 53706

Land Rsources is an interdisciplinary program leading to the Master of Science in Land Resources and the Doctor of Philosophy with a major in Land Rsources. The degree is especially designed for students who wish to broaden their field of knowledge related to land and natural resources or who, because of employment or other experience, find they need special training in the technical, social, or management aspects of land.

University of Wisconsin, Stevens Point
College of Natural Resources
Environmental Education
(M.S.)

Richard Wilke
College of Natural Resources
University of Wisconsin
Stevens Point, WI 54481

The College of Natural Resources offers both an undergraduate ad graduate program in Environmental Education. Students can specialize in Environmental Education Instruction, Adult and Community Based EE, Environmental Communication or Environmental Interpretation. In all cases students develop competencies in ecology, environmental awareness, issue investigation and evaluation, and environmental action. Relevant practical experience is available for all through the University's Central Wisconsin Environmental Station and Schmeeckle Reserve.

WYOMING

University of Wyoming
Grad. Program in Community & Regional Planning
Master in Planning Program
(M.P.)

Hans Bleiker, Director
Community & Regional Planning Program
c/o Dept. of Geography
University of Wyoming
Laramie, Wyoming 82071

This program is designed to prepare individuals to function as managers, directors and administrators of multi-disciplinary, public-sector problem-solving/decision-making efforts.

CANADA

University of Alberta
Department of Forest Science
Master of Science Program in Forest Science
(M. Sc.F.)

Linda Ehrler or Doug Walker
Department of Forest Science
714 Chemical-Mineral Engineering Building
University of Alberta
Edmonton, Alberta T6G 2G6

The Department of Forest Science offers a Master of Science Program. Other departments within the Faculty of Agriculture and Forestry offer expertise in forest-related areas. Entrance requirement is normally a B.Sc.F. or its equivalent, although flexibility is possible in developing programs for applicants with Bachelor's degree in another discipline.

University of British Columbia, Vancouver
Resource Management Science
(M.Sc., Ph.D.)

L.M. Lavkulich, Chairman
Resource Management Science
University of British Columbia
3075 West Brook Mall
Vancouver, B.C., Canada
V6T 2A2

Program is an interdisciplinary program in resource management. Students may specialize in a number of concentrations viz land management, wildlife management, fisheries management, range management, water resources management and ecological policy analysis. New concentrations being developed include renewable energy and aqua culture. Programs are "tailor-made" for individual students to meet student desires as well as academic excellence.

The University of Calgary
Faculty of Environmental Design
Environmental Science
(M.E.Des.)

Professor Dixon Thompson, Programme Director
Faculty of Environmental Design
The University of Calgary
Calgary, Alberta T2N 1N4

(Description follows on next page)

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The degree Master of Environmental Design (Environmental Science) prepares students for the new and expanding professional and scientific research opportunities in environmental consultant practices and government programmes. It embraces the spectrum of interests, among them impact assessment, landscape rehabilitation, ecological analysis and modelling and research, wildlife management, energy and water conservation and management. The programme normally requires three years of study. Graduates are in high demand in both public and private sectors.

University of Toronto
Institute for Environmental Studies
Collaborative Programme in Env. St.
(M.A., M.Sc.)

Professor A.P. Grima,
Coordinator of Graduate Studies
Instit. for Environmental Studies
Haultain Building
170 College Street
University of Toronto
Toronto, Ontario M5s 1A4

The Institute for Environmental Studies is an interdisciplinary centre for research and study which offers association with a wide range of biologists, engineers and social scientists. The primary goal of the Institute is to provide the facilities and academic climate for problem-oriented research to those who wish to maintain their discipline-based academic work. M.A./M.Sc. programmes are therefore undertaken on a collaborative basis with the departments of Geology, Botany, Forestry, Zoology, Geography, Anthropology, Political Science and Public Administration.